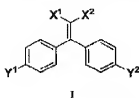


**EXAMINER'S AMENDMENT**

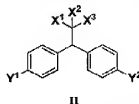
1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Tom Thrash on 10 July 2009.
3. The application has been amended as follows:
4. All pending claims have been replaced with the claims as set forth below:

WHAT IS CLAIMED IS:

1. (Currently Amended) A monomer having a form selected from the group consisting of:



and



wherein  $X^1$ ,  $X^2$ , and  $X^3$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof;

wherein at least one of  $X^1$  and  $X^2$  is not H; and

wherein at least one of  $X^1$ ,  $X^2$ , and  $X^3$  is not H;

wherein  $Y^1$  comprises a polymerizable unit;

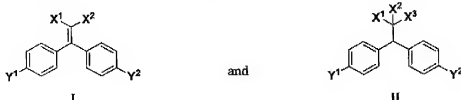
wherein the polymerizable unit comprises a functional moiety selected from the group consisting of an epoxide, an alkene, an alkyne and combinations thereof; and

wherein  $Y^2$  is selected from the group consisting of OH; H; Cl; Br; I; F;  $OR^1$ ,

wherein  $R^1$  is selected from the group consisting of alkyl, aryl, and combinations thereof; and  $R^2$ , wherein  $R^2$  is selected from the group consisting of alkyl, alkenyl, alkynyl, and combinations thereof.

2. (Previously Amended) The monomer of claim 1, wherein the polymerizable unit comprises an alkene.

3. (Currently Amended) A monomer having a form selected from the group consisting of:



wherein X<sup>1</sup>, X<sup>2</sup>, and X<sup>3</sup> are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof;

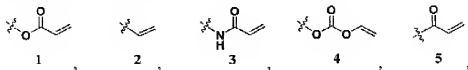
wherein at least one of  $X^1$  and  $X^2$  is not H; and

wherein at least one of  $X^1$ ,  $X^2$ , and  $X^3$  is not H;

wherein Y<sup>1</sup> comprises a polymerizable unit comprising at least two polymerizable functional moieties; and

wherein Y<sup>2</sup> is selected from the group consisting of OH; H; Cl; Br; I; F; OR<sup>3</sup>,  
wherein R<sup>3</sup> is selected from the group consisting of alkyl, aryl, alkenyl and combinations  
thereof; and R<sup>4</sup>, wherein R<sup>4</sup> is selected from the group consisting of alkyl, alkenyl,  
alkynyl, and combinations thereof.

4. (Currently Amended) The monomer of claim 3, wherein the polymerizable unit ~~comprises~~ a bis-alkene.
5. (Original) The monomer of claim 1, wherein the polymerizable unit is attached to the monomer via a spacer group.
6. (Previously Amended) The monomer of claim 1, wherein the polymerizable unit is selected from the group consisting of:

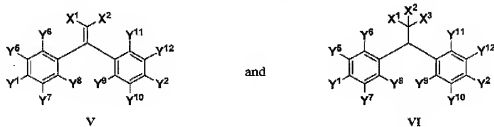




7. (Previously Amended) The monomer of claim 1, wherein  $Y^2$  is selected from the group consisting of OH, H, Cl, Br, I, and F.

8 – 22 (Cancelled)

23. (Currently Amended) A monomer having a form selected from the group consisting of:



wherein,

- a)  $X^1$ - $X^3$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof;

wherein at least one of  $X^1$  and  $X^2$  is not H; and

wherein at least one of  $X^1$ ,  $X^2$ , and  $X^3$  is not H;

- b) at least one of  $Y^2$  and  $Y^9$ - $Y^{12}$  is selected from the group consisting of (i) OH; (ii) H; (iii) Cl; (iv) Br; (v) I; (vi) F; (vii)  $OR^4$ , wherein  $R^4$  is selected from the group consisting of alkyl, aryl, and combinations thereof; (viii)  $R^6$ , wherein  $R^6$  is selected from the group consisting of alkyl, alkenyl, alkynyl, and combinations thereof; and (ix) combinations thereof;

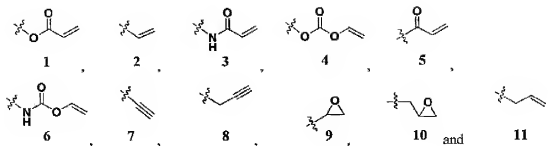
- c) the remainder of  $Y^2$  and  $Y^9$ - $Y^{12}$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof;

- d) at least one of  $Y^1$  and  $Y^4$ - $Y^8$  comprises a polymerizable unit;

wherein the polymerizable unit comprises a functional moiety selected from the group consisting of an epoxide, an alkene, an alkyne and combinations thereof; and

e) the remainder of  $Y^1$  and  $Y^4$ - $Y^8$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof.

24. (Currently Amended) The monomer of claim 23, wherein exactly one of  $Y^1$  and  $Y^5$ - $Y^8$  comprises a polymerizable unit.
25. (Currently Amended) The monomer of claim 24, wherein exactly one of  $Y^2$  and  $Y^9$ - $Y^{12}$  is selected from the group consisting of (i) OH; (ii)  $OR^5$ , wherein  $R^5$  is selected from the group consisting of alkyl, aryl, and combinations thereof; and (iii)  $R^6$ , wherein  $R^6$  is selected from the group consisting of alkyl, alkenyl, alkynyl, and combinations thereof.
26. (Previously Amended) The monomer of claim 24, wherein  $Y^2$  and  $Y^9$ - $Y^{12}$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof.
27. (Currently Amended) The monomer of claim 23, wherein,  
(a)  $Y^5$ - $Y^{12}$  are each selected from the group consisting of H, Cl, Br, F, I, and combinations thereof;  
(b)  $Y^2$  is selected from the group consisting of (i) OH; (ii) H; (iii) Cl; (iv) Br; (v) I; (vi) F; (vii)  $OR^5$ , wherein  $R^5$  is selected from the group consisting of alkyl, aryl, and combinations thereof; and (viii)  $R^6$ , wherein  $R^6$  is selected from the group consisting of alkyl, alkenyl, alkynyl, and combinations thereof; and  
(c)  $Y^1$  comprises a polymerizable unit.
- 28 – 32 (Cancelled)
33. (Previously Presented) The monomer of claim 24, wherein the polymerizable unit is selected from the group consisting of:



34. (Currently Amended) The monomer of claim 24, wherein at least two of  $Y^2$  and  $Y^9-Y^{12}$  are selected from the group consisting of (i) OH; (ii)  $OR^5$ , wherein  $R^5$  is selected from the group consisting of alkyl, aryl, and combinations thereof; and (iii)  $R^6$ , wherein  $R^6$  is selected from the group consisting of alkyl, alkenyl, alkynyl, and combinations thereof.
35. (Cancelled)
36. (Cancelled)

5. The title has been changed to "Flame Retardant Polymers Having Pendant Groups Related to Bisphenol-C and Monomers for Synthesis Thereof".

***Reasons for Allowance***

6. Claims 8-22, 28-32, and 35-36 have been cancelled. Therefore, claims 1-7, 23-27, and 33-34 are pending.

7. Claims 1, 3, 4, 23, 24, and 27 have been amended by the Examiner's Amendment above to change several instances of "comprising" back to "is" for consistency with the scope of the originally filed claims.

8. Applicant's amendment filed 4 May 2009 changed the scope of claims 1, 3, 23, 25, 27, and 34 by eliminating the alternative selection of "alkenyl" from the group "R" in the instance where a Y group is chosen to be "OR". This change therefore made the two instances of the "R" group which are recited in the claims different in scope from each other. For clarity, claims 1, 3, 23, 25, 27, and 34 have been amended by the Examiner's Amendment above to distinguish between these instances of the "R" groups by the addition of superscripts.

9. Regarding the rejection of claims 1-6 and 24-27 under 35 USC 112, second paragraph: Applicant argues (page 13 of the Remarks filed 4 May 2009, hereinafter "Remarks") that the amendment filed on 4 May 2009 (hereinafter "the amendment") of

claims 1-6 and 24-27 to include a definition of the group Y2 renders the claims definite. This argument is persuasive, and therefore this rejection has been withdrawn.

10. Regarding the rejection of claims 24-27 under 35 USC 112, second paragraph: Applicant argues (page 13 of Remarks) that the amendment to correct the preambles renders the claims definite. This argument is persuasive, and therefore this rejection has been withdrawn.

11. Regarding the rejections of claims 1, 2, 5-7, 23-25, and 27 as anticipated by Jurs: Applicant argues (pages 14-16 of Remarks) that the amendment to remove the alternative selections of OR where R is alkenyl renders the claims novel over Jurs. Because Jurs does not disclose compounds according to the instant claims other than those made by the selection of the groups OR where R is alkenyl, this argument is persuasive, and therefore this rejection has been withdrawn.

12. Regarding the rejection of claims 1, 7, 23-25, and 27 as anticipated by Factor: Applicant argues that the amendment to further limit the groups Y1 and Y5-Y8 renders the claims novel over Factor. Factor only disclose compounds according to the originally filed claims which have two hydroxyl polymerizable groups. Because the amendment to further limit the groups Y1 and Y5-Y8 excludes the possibility of two hydroxyl polymerizable groups, this argument that claims 1, 7, 23-25, and 27 are novel over Factor is persuasive, and therefore this rejection has been withdrawn.

13. Regarding the rejection of claims 1, 2, 6, 7, 23, 24, 26, and 27 as anticipated by US '007: Applicant argues that the amendment to further limit the X groups renders the claims novel over US '007. Because US '007 does not disclose compounds according



to the instant claims which have at least one halogen as an X group, this argument is persuasive, and therefore this rejection has been withdrawn.

14. Structure searches have been performed with the program STN Express; the search results are made of record. These search results included the following documents:

a. Jurs, Joshua L.; Tour, James M. *Polymer* **2003**, 44(13), 3709-3714, which was relied upon in the preceeding Office action. This reference does not bar an allowance in view of the amendment filed by Applicant on 4 May 2009. See also paragraph 11 above.

b. "Vinyl bisphenol C for flame retardant polymers", Stephenson, Jason J.; Jurs, Joshua L.; Tour, James M. In SAMPE Conference Proceedings, Long Beach, CA, May 16-20, 2004, pp. 530-534. This document does not qualify as prior art, because it is authored by the present inventive entity, and it was published after the filing of the instant application.

15. None of the other structure search results bar an allowance.

16. The following art is made of record:

c. US Patent No. 3,225,106 discloses (see Table I) structurally related halogenated compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.

- d. US Patent No. 3,350,352 discloses (see the formulas in cols 1-2) structurally related halogenated bisphenol compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.
- e. US Patent No. 3,472,806 discloses (see the formulas in col 2) structurally related halogenated bisphenol compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.
- f. US Patent No. 3,944,521 discloses structurally related bisphenol diacrylate compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.
- g. US Patent No. 4,049,726 discloses (see the abstract) structurally related halogenated diisopropylarylene compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.
- h. US Patent No. 4,274,998 discloses (see the abstract) structurally related halogenated bisphenol compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.
- i. US Patent No. 6,875,895 discloses (see the abstract) structurally related halogenated polyarylene compounds. The compounds disclosed therein are not

according to the instant claims, and therefore this document does not bar an allowance.

j. US PGPub 2008/0058458 discloses (see paragraph 16) brominated diphenylethane compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.

k. US PGPub 2008/0221230 discloses (see the abstract) structurally related halogenated bisphenol compounds. The compounds disclosed therein are not according to the instant claims, and therefore this document does not bar an allowance.

17. The prior art fails to disclose or suggest compounds according to instant claims 1-7, 23-27, and 33-34. Therefore, claims 1-7, 23-27, and 33-34 are allowed.

18. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD A. HUHN whose telephone number is (571)

270-7345. The examiner can normally be reached on Monday to Friday, 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. A. H./  
Examiner, Art Unit 1796

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796